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ON THE
USES OF WINES
IN
HEALTH AND DISEASE

DR. ANSTIE

MACMILLAN & CO.



ON THE
USES OF WINES IN HEALTH
AND DISEASE.

BY

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ON THE USES OF WINES

IN

HEALTH AND DISEASE.

PART I.

ON THE PLACE OF WINES IN THE DIET OF ORDINARY LIFE.

IN commencing a series of papers on the uses of Wines in health and in disease, we must briefly define the intended scope of our inquiry, in order to avoid misunderstandings. In the first place, it is no part of our object to discuss the question of the lawfulness or the advisability of using alcoholic liquors in general, either as food or as medicine; we shall take it as established, both by wide-spread custom and by the most recent physiological research, that alcohol as such, has its legitimate place in the sustentation both of the healthy and of the diseased organism. Nor shall we occupy space with the re-assertion of the doctrine, of the absolutely different effects respectively produced by the moderate and by the excessive use of this class of drinks. It is our intention to deal specially with Wines as such; to show that the whole group of these beverages has common properties and uses that

separate it from other alcoholic liquids ; and further, that among wines themselves there are very numerous differences, of which many are probably not yet understood either by the public or even by the majority of medical men. We can hardly be mistaken in the latter assertion, sweeping though it seems ; since not only is it common to meet with invalids and others who have received diametrically opposite directions as to the choice of beverages from different practitioners of equal standing, but we have observed after a pretty close study of this subject, extending over more than thirteen years, that hasty generalizations, which will not bear sifting, are almost as common in the pages of recent as of older writers on this topic. One part of our knowledge has, indeed, of late made solid, though limited advances—viz., the chemistry of wines. But the far wider question of their choice and practical uses is still in the most uncertain state ; and it must be confessed that recent literature on the subject, though it may have cleared away some gross misconceptions, has almost neutralized this benefit by fostering the growth of new prejudices which are scarcely less unfounded than the old ones. And there is one aspect of the new discussions upon which, though we would willingly ignore it, our duty compels us to animadvert with plainness : we mean the influence of commercial motives. We are not imputing conscious dishonesty to the writers even of the most objectionable of the many trade circulars which have been published under the guise of scientific pamphlets on wine ; but it is only too obvious to those who are at all behind the scenes that commercial bias has in several instances assisted powerfully in the development of exclusive dogmas which, from a scientific standpoint, must be regarded as

capricious and absurd. It may perhaps be necessary hereafter to illustrate this with some particularity; at present it will be enough to adduce an instance which is so common that our criticism of it can scarcely inflict the sting of personal reproach: we refer to the clamour for the exclusive use of particular "natural" or "unfortified" wines. Doubtless this cry represents a natural, and on the whole a wise, reaction from certain stupid and pernicious routine habits of English life; but it has been largely fostered and exaggerated by traders, and by a certain class of scientific men, in a manner which scarcely corresponds with the idea of disinterestedness, unless we are to suppose that their enthusiasm is strongly leavened with ignorance.

To a medical writer on wines there are several inducements to attack the subject first from the side of the medicinal uses of these drinks; the strongest reason being that, from the nature of his daily experience, he is most familiar with this aspect of the question. We prefer, however, to start from the view of wine as a beverage of ordinary life; being persuaded that the subject can only be fairly examined in this way. It is no doubt true, on the one hand, that a complete statement of the physiological action of wines cannot, in the present state of science, be given; and, on the other hand, it may be urged that if empirical experience is to be our guide, the circumstances of sickness offer a guarantee for closer and more accurate observation of the phenomena than can be expected when wines are used as a mere beverage of the healthy. To this argument we believe there is one conclusive reply—that there is no such clear line between health and disease as is assumed in common speech; that the foreshadowings and faint

images of disease are to be seen in sundry incidents of the life of those who are conventionally regarded as healthy, and that it is in the study of these "natural diseases" (if we may use such a phrase), and their relations to the dietary remedies which general custom, independently of medical authority, has prescribed for them, that we are most likely to discover a reasonable basis for the use of these remedies in diseases which involve extensive and obvious departures from the standard of health. It need scarcely be said that alcoholic drinks, rightly or wrongly, are the commonest of all household remedies for a large number of paltry ailments; and one of the first things which we wish to demonstrate is the prominent fitness of wines, above other alcoholic drinks, for all legitimate purposes of this kind. Accordingly, we shall in the first place very simply sum up the composition of wines, as a class; and also the main distinctions between the principal kinds.

1. In the first place, we have to consider wines as alcoholic fluids; and we must remind our readers of the elementary facts as to their relative strengths as compared with each other, and with other kinds of alcoholic drinks. It will be enough for the present to say that the *strong* wines, including port, sherry, madeira, marsala, and all that genus, contain on the average something like 17 per cent. of absolute alcohol (the strongest ports ranging as high as 23 per cent. or more), and that the *light* wines, including claret, burgundy, champagne, Rhine, and Moselle wines, Hungarian wines, &c., average between 10 and 11 per cent. of absolute alcohol (the lightest champagnes not containing more than 5 or 6 per cent.). Comparing wines with beers, we may note that the poorest sorts of beer contain about 2 per cent. of absolute alcohol; ordinary table-ale, as drunk in most

middle-class households, about 3 per cent.; ordinary porter between 3 and 4 per cent.; stout from 5 to 6 per cent.; while the strongest kinds of malt liquors range through various degrees up to even 10 per cent.; and a common strength for good bottled ale or stout is about 7 per cent of absolute alcohol. On the other hand, good brandies and rum average between 45 and 50 per cent. The above rough averages are only drawn with a view to place before the reader a standard of comparison by the help of which he may realise, somewhat more accurately than is usually done even by medical men, the comparative alcoholic potency of beverages which are so commonly recommended in an off-hand and careless fashion. For instance, let us take the very common case of a lady, not exactly ill, but delicate, and "needing generous living," who takes "three or four glasses of port wine a day." Now it need hardly be said that wineglasses vary greatly in size, and that of late years there has been a marked tendency to make them larger than formerly; but we will take the moderate average of 2 ounces for a port-glass: then four of these will contain 8 ounces of wine, which, on the supposition that the liquor is of a fair age and quality, will represent $1\frac{1}{2}$ ounce of absolute alcohol, or the alcoholic equivalent of 50 ounces (five large tumblers) of table-beer, or 3 ounces of good brandy, or two-thirds of a bottle of a generous claret or Rhine wine. Or to put the comparison in another practical form (still avoiding the nuisance of a dry tabular statement), we may say that a bottle of twelve glasses of average port is equal in alcoholic strength to rather less than half a bottle of brandy, or two bottles of good claret or hock, or nearly a gallon of table-beer or of light champagne. Now, it would be

easy to make a somewhat sensational point, by showing that the by no means unusual allowance for ladies who are at all "delicate" of two glasses of port or sherry at lunch, and the same quantity at dinner, daily, makes up the alcoholic equivalent of a bottle of brandy every week, which looks rather shocking on paper. But apart from the question whether such an allowance is excessive or not, we would insist on the value of this kind of comparison, as tending to show very distinctly that the place of the stronger wines is rather among the cordials, to be used under express and careful medical sanction, than among the beverages of common life, since it is plain that a very little carelessness in their use may lead to actual excess. The daily allowance above-mentioned includes an amount of absolute alcohol which our own experimental researches have shown to be about the limit of what can be habitually taken by persons leading a not very active life, without provoking symptoms of chronic malaise indicative of actual alcoholic poisoning.

It is otherwise with the class of light wines, speaking in the broadest sense; wines, namely, that average no more than 10 per cent. of alcoholic strength. So far as alcoholic strength is concerned, it may be said in general terms that half a bottle a day of such wine for a sedentary, and a bottle a day for a vigorous and actively employed adult, affords a reasonable and prudent allowance of alcohol; and this quantity of wine, either alone or with water, will be enough to satisfy the needs of moderate persons for a beverage at lunch and dinner, the only two meals at which alcohol should, as a rule, be taken.

We have put this question of the absolute alcoholic *allowance for healthy adults* in a somewhat crude and

abstract form, not undesignedly; for we wish to compel the upper and middle classes, and their medical advisers, to look the facts of alcoholic consumption honestly in the face. No one who is at all conversant with the habits of the wine-drinking classes will deny that such a daily allowance of alcohol as we have above mentioned is distinctly within the average consumption of persons of moderate habits as the ways of society go; and indeed we fear that a good many persons will characterise it as utopian in its standard of temperance. It is therefore well to remember, that the same quantity of alcohol, represented in beer, makes up between two and three pints; and that a labouring man who exceeded this daily allowance would certainly fall under the ban of conventional moralists as "intemperate." It would probably be a surprise to many worthy philanthropists, if they chanced to read this paper, to find themselves placed so nearly on a level with Hodge the carter, who reprehensibly fuddles himself with "t'other pint." But in fact the matter is stronger than this: and for once we must beg leave to drop the conventional theory of educated manners, and describe plain facts. It is true that there has been a real advance towards temperance of late years, and that intoxication has become a monstrous exception, among the cultivated classes. But we may appeal to any medical man with a knowledge either of metropolitan or provincial society as to the accuracy of the following computation. We shall admit, in the first place, that there are many men, and very many women, who drink almost no alcohol. But the greater number of men, and a large number of women, of the middle and upper ranks, habitually take a daily allowance of alcohol far larger than that above indicated. We purposely leave out of sight the reckless "fast" men who

are perpetually "nipping" at bitters or absinthe, or "setting themselves right" with just another "brandy-and-soda," and also the miserable women—whose numbers none but the doctors even faintly suspect—who indulge in secret dram-drinking. Excluding all such persons from our reckoning, let us merely consider the case of the moderate diners-out, and the virtuous dancing young ladies. The former will certainly take on the average 8 ounces of strong wines, and 12 to 16 of light wines, daily; or he will make up the equivalent of this with beer or with spirits: in fact, he will take about 3 ounces of absolute alcohol, or the equivalent of about a gallon of the puddle-beer that labourers drink. And the young lady will not take less than three-fourths of this quantity by the time she has finished her last champagne-cup at the ball or rout. If any one thinks this estimate excessive, we assure him, that, were it discreet, we could produce accurate notes of the performances of sundry terpsichorean and otherwise athletic young ladies, of irreproachable character, to which the foregoing facts are a trifle.

It is, in fact, a considerable puzzle to understand, at first, how our respectable classes manage to consume so much more alcohol, without reproach, than the unfortunate Wiltshire clodhopper, for example, can do. Doubtless one reason is that their drinks are not muddled with *Cocculus indicus*, &c., as his is. But no doubt the truth is that the intoxicative, that is the *visibly* poisonous, effects of alcohol are mainly kept at bay by powerful exertion either of the muscular or of the nervous system: and the wealthy classes to a large extent do task either one or both of these systems far more heavily than labourers, except those employed in some specially fatiguing callings. Nevertheless, there is grave danger

of excess, were it merely from the multiplication of alcoholic drinks which are taken by the richer classes ; and it will be our aim to show that adherence to one drink, and generally one *wine*, is almost a necessity for the purposes of health.

It has already been shown that there is a great tendency in the customs of modern middle and upper class society to introduce modes of wine-drinking which would easily involve people in habits of alcoholic excess, though such an idea might be far enough from their wishes or intentions.

It is very obvious that the multiplication of alcoholic drinks, with different flavours, each tempting in its turn, must lead the sharer in convivial feasts to forget how much he has already drunk ; more especially if (as is usually the case) he has no accurate knowledge of the alcoholic strength of the liquors which he takes. And even in every-day life it cannot be easy for those who adopt the common plan of drinking at least two, and generally three, separate alcoholic liquors in the course of the day, to regulate their allowance of alcohol with anything like nicety. It is therefore much to be desired that people may be educated in the direction of using only one alcoholic drink ; at least for every-day consumption. The choice of this one drink must in each individual case depend upon a number of other considerations besides mere alcoholic strength, and these will be discussed further on ; at present we have to point out those drinks which are suitable, in the single matter of strength, to be selected as the only alcoholic beverage.

What we have practically to consider is the possibility of selecting some alcoholic fluid which shall be weak enough—either when taken neat, or with only so

much water as will not make it distasteful—to enable us to drink so much of it as will satisfy all needs for fluid at lunch and dinner (or dinner and supper with folk of early habits), without producing any of the injurious effects of alcohol. Weak beers would, of course, very well fulfil these requirements; for instance, a sound light table-beer, containing about 3 per cent. of absolute alcohol. But to a large number of persons the quantity of such beer that would satisfy thirst, and also prove sufficiently stimulant, would not be readily digestible; or, if it did not disorder primary digestion, would cause disagreeable after-consequences. Especially to persons of a gouty constitution, such a regimen would be most unwholesome; also to many persons with rheumatic tendencies, on account of the sugar and dextrine which some light beers contain. Beers, again, cannot be mixed with water and retain their agreeable flavour.

It is amongst the class of natural wines, averaging not more than 10 per cent. of absolute alcohol, that we must seek the type of a universal alcoholic beverage for every-day life. If we turn to the most recent analyses (the very careful work of Dr. A. Dupré, of the Westminster Hospital), we find two kinds of wine which, as far as alcoholic strength is concerned, meet the ideal want—viz., a Rhine wine at $9\frac{1}{2}$ per cent. alcohol, and a claret at $8\frac{1}{2}$ per cent. Such wines are easily procurable, and we may say that we have, in either of them, a beverage which, alone or diluted with a certain amount of water, would at once satisfy all needs for liquid with the principal meals, and all needs for alcohol, in the most convenient and agreeable way. A bottle a day of either of these wines for an actively employed adult, and a proportionately less quantity for

those whose life is more sedentary, would very well represent the allowance of alcohol which may be said to suit best the standard of ordinary health. Unfortunately, however, for persons of moderate means the German wines, in the present state of prices, are practically out of the field as *beverages*. It is quite possible (*experto crede*) to procure in London an admirably sound ordinary Bordeaux for 12s. a dozen (alcoholic strength 8 to 9 per cent.); but a German wine of anything like equal merit would cost twice as much. The same may be said respecting Hungarian, Burgundian, and Greek wines, besides other objections to be noticed hereafter.

Practically, then, those who wish to adopt the plan of drinking all their alcohol in the shape of one wine, will probably do best with Bordeaux, which is also *par excellence* the wine which may be mixed with water (of course we speak of the humbler growths) without spoiling. We maintain that for the hard-working student, politician, professional man, or busy merchant, there is no better arrangement possible than that of taking, as the regular daily allowance, a bottle of sound ordinary wine of Bordeaux: and that the number of persons with whom such a diet really disagrees is very limited; but on the latter point we shall have more to say hereafter, in discussing the other ingredients of wines. It may be added that no other wines which the world produces are capable of yielding, day after day, such unwearied pleasure to the palate as the sound ordinary wines of Bordeaux and of the Rhine.

While, however, we vindicate, for the light natural wines, the position of the best common alcoholic drink for healthy adults, we have some remarks to make on certain more limited and occasional uses of wines, which

embody ideas not commonly received by the profession. We refer to the employment of the stronger wines, such as port, sherry, madeira, or marsala, all of which are fortified by the addition of alcohol over and above that produced by their own fermentation.

It is a common idea that the stronger wines are particularly suited to healthy adult life, and especially to middle age; but we believe that this is a complete mistake. The vigorous frame and perfect digestion of a healthy young or middle-aged person requires but a moderate daily allowance of alcohol to assist functional activity; and as, nevertheless, the temptation to free indulgence in the pleasures of the table is most influential in the middle period of life, it is of the greatest consequence that the alcohol should be taken in the most diluted forms: and we may add that this is especially necessary for persons (particularly women) who possess a nervous temperament, and are, therefore, highly sensitive to strong and pleasing impressions on the nervous system. It is otherwise with the two extremes of life—infancy and old age; in both these periods there are tendencies to a variety of afflictions which scarcely appear to deserve the name of positive disease, but which demand serious modifications of the diet; these conditions may, we affirm, be far more advantageously treated by the administration of the *stronger wines* than by any other means whatever. We shall defer the full consideration of this subject till we come to speak of the ethereal constituents of wine, which count for at least an equal, if not a greater, value than that of the alcohol in this particular use of the stronger wines, more especially of sherry.

2. Sugar is the next ingredient of wines which we have to consider in the selection of appropriate

beverages for persons in ordinary health; and here we get a forcible illustration of the maxim that "health" is not a constant and uniform thing, capable of being separated by a sharp line from "disease:" for there are the greatest possible differences between the respective capabilities of different persons, equally healthy in appearance, to digest saccharine wines.

The respective proportions in which the various classes of wines contain sugar cannot, of course, be stated in a summary manner, sugar being precisely the most varying element. Given a wine made from a certain grape, and under certain climatic conditions, then, of course, the amount of sugar which it actually contains when drunk will depend, (1) on the degree of completeness to which fermentation was allowed to proceed in the wine-making; and (2) on the age of the wine. Taking the matter broadly, it may be said that the natural wines are the non-saccharine, and the fortified wines are the saccharine; though there are important exceptions to this which must be specially mentioned. Here are the results of Dr. Dupré's analyses of four clarets (red Bordeaux), of the respective prices of 12s., 15s., 30s., and 66s. per doz.; the first contained 13·56 grains of sugar in the bottle, the second 15·62 grains, the third 18·48 grains, and the fourth (an old bottled wine) 11·40 grains. Contrast with this the same chemist's analyses of four sherries, prices respectively 22s., 36s., "high" and "high," the two last being wines of good vintage, and some years in bottle: the quantities of sugar are, 307·8 grains, 217·2 grains, 356·4 grains, and 421·2 grains per bottle, respectively. Take also the analyses of four ports (vintages 1864, 1851, 1851, and 1842); the quantities of sugar per bottle are 519·72

grains, 460·80 grains, 190·20 grains, and 121·20 grains. Two samples of marsala (old and good) contained 388·8 and 451·2 grains of sugar per bottle, respectively. The natural wines of the Rhine, on the other hand, contain even less sugar than clarets; thus in four samples examined by Dr. Dupré (prices 15s., 20s., 36s., and 72s. per doz.), the sugar per bottle amounted to 1·44 grains and 8·64 grains, respectively, in the two cheapest, and to a mere "trace" in the two others. Champagne stands in a peculiar position, as it is intentionally sweetened; according to Bence Jones' analysis there are about 500 grains of sugar per bottle in such varieties as find most favour in this country (*e.g.* Moët and Chandon, *première qualité*); but some champagnes are sweetened to a much higher pitch, while, on the contrary, some English connoisseurs demand a champagne which scarcely contains half this amount of sugar. Hungarian natural wines contain but a small amount of sugar; they stand somewhat intermediate, as regards this element, between Rhine wines and red Bordeaux.

One of the richest in sugar of all the natural wines is Bordeaux-Sauterne, a white wine of great popularity, from its fragrant bouquet and flavour. Bence Jones' analysis of a sample of fine Sauterne (72s. per doz.) gives 125 grains of sugar to the bottle; and the taste of this wine, until it has been many years in bottle, is distinctly sweet, too much so, indeed, for the taste of many wine-drinkers. On the other hand, among the fortified wines we occasionally meet with sherries of extreme "dryness," containing, in fact, almost no sugar at all: such, for instance, as an amontillado (marked "very good" in Bence Jones' tables). But such wines, *when genuine*, are too expensive for common use.

The above brief summary of the proportion of sugar

in the principal varieties of wine will be sufficient for the purposes of those who merely require some guidance in the choice of an every-day beverage. It is clear that for those who wish to employ wine as a beverage, and to avoid the use of a highly saccharine liquor, the safest choice, in this respect, lies between the sound ordinary wines of Bordeaux, the Rhine, and Hungary. It now remains for us to inquire what are the facts as to the wholesomeness or unwholesomeness of saccharine wines, as such, to persons in ordinary health.

It must be remembered, in the first place, that we are not dealing with the possible effects of *very large* quantities of sugar in wine. The "dietetic use of wines" does not practically include the employment of any wine which would contain more than one ounce to the bottle, and the facts already detailed as to alcoholic strength will show that the wines (except champagne) that contain anything like this percentage of sugar—port, sherry, madeira, marsala—cannot (on the ground of alcoholic strength) be safely taken in larger daily quantities than one-third to one-half of a bottle. The question then arises, whether—and if so in what circumstances—the ingestion of from one-third to half an ounce of sugar in their wine has a deleterious influence upon persons in what would ordinarily be called "health."

There are three classes of individuals enjoying fairly good general health respecting whom there is a certain amount of evidence that saccharine wines are apt to unfavourably influence their bodily condition. (1.) A considerable number of persons possess a marked proclivity to excessive deposit of *fat* in the cellular tissues; and a good deal of evidence has been adduced by various writers—from Brillat-Savarin to Banting—

to show that the saccharine and sugar-making ingredients of food aggravate this tendency. It is not necessary, however, to dwell on this subject, as the amount of sugar introduced into the body by anything like a temperate consumption of saccharine wines would obviously be trifling as compared with the supplies furnished by ordinary food. (2.) The tendency to *gouty* affections, which is hereditary, is widely diffused among persons otherwise healthy, and a certain amount of evidence exists to show that a considerable saccharine ingredient perceptibly increases the well-known tendency of alcoholic drinks to evoke the tendency to gout which is latent in such constitutions. Our own investigations lead us to entire concurrence with the opinion of Garrod—the greatest living authority on gout—that the saccharine element of alcoholic liquors has never yet been proved to be the *only* effective element in provoking the disease. Nevertheless, the fact that the one common feature in all those classes of drinks which really do seem convicted of a strong gout-producing tendency—malt liquors, strong wines, champagnes, and sweet cider—in their saccharine or sugar-producing quality, does suggest an almost necessary connection between saccharine beverages and gout. Even if it be true, as Dr. Garrod maintains, that even the “driest” sherry will often appear to excite gout in a predisposed individual, we cannot believe that the saccharine element of wines has not a powerful influence in developing gouty manifestations. In truth, however, we question the accuracy of this assertion; at least we greatly doubt whether really non-saccharine sherry ever produced a *first attack* of gout; but when the tendency to the attacks has become very strong, a trifling disturbance of digestion might be sufficient to

bring on a fit of gout, and even so innocent a fluid as dry sherry might suffice for this purpose. Still, there can be no question that for persons who are born of gouty families, especially if they have themselves experienced warnings of gout, the safest course is to avoid the whole class of fortified wines, and confine themselves to sound light claret, or, in the rare cases where this disagrees, to very weak cold spirits and water, carefully bearing in mind that though, when used in moderation, alcohol itself does not appear to be a gout-producer, yet the depression of the nervous system which inevitably follows excesses, even with plain gin, is perfectly competent to induce gout in predisposed persons. (3) Even more than to those persons who are liable to well-pronounced gout, saccharine wines are a danger for that class of dyspeptic patients who are the victims of a latent gouty disposition. In subjects of this temperament the effects of even a small indulgence in this kind of liquor are often extremely disastrous. We are acquainted with one lady whose sensitiveness in this regard makes her stomach an extraordinarily delicate tester of the sweetness of wines. The least approach to high saccharine quality makes wine, to her, a poison which infallibly provokes severe vomiting or bilious diarrhoea, or both. It is a curious circumstance, however, that this particular lady only showed the tendency in question rather late in life, previously to which period she had habitually, though very moderately, taken port wine of a decidedly saccharine type; and it was soon after her first development of an incapacity to bear this wine that her first (very slight) symptoms of articular gout appeared. The same lady drinks very dry sherry with perfect impunity.

The peculiar form of dyspepsia which is found in

persons of gouty habit is, however, by no means the only dyspepsia with which the saccharine wines disagree. It is one of the commonest medical observations that a considerable number of persons can only maintain a good and active state of the digestive powers by means of a very strict limitation of their allowance of sugar, and also of the starch-containing foods, which undergo conversion into sugar at an early stage of the digestion. Such persons are obliged to be extremely moderate, for instance, in their consumption, not merely of pastry and sweets, but even of bread and potatoes, under penalty of severe dyspepsia if they transgress this rule. To such individuals the saccharine wines are commonly very unsuitable and disturbing. For some reason, not clearly apparent in the present state of our knowledge of the chemistry of digestion, the tendency of sugar to "turn acid" on the stomach is very much heightened when that substance is given in combination with alcohol. This is the case even when it is taken with a plain spirit like gin. But the mischief is still further heightened in the case of wines, since all wines contain a considerable proportion both of fixed and volatile acids, as will be presently seen. The tendency of the sugary wines to produce sour dyspepsia is, however, altogether out of proportion to their chemical degree of acidity. For instance, such a wine as one of the ports analysed by Dr. Dupré (vintage 1864), which contain 43.31 grains per 1,000 of sugar, and only 4.13 per 1,000 of total free acids, is far more likely to be mischievous in this direction than a light natural wine like claret of good quality, which may contain as much as six grains of free acid per 1,000.

3. The natural *acidity* of wines is the next item which needs consideration in reference to their use as

beverages; a more general diffusion of accurate knowledge on this subject is highly desirable, since the taste of wines, by which people ordinarily judge of their acidity, is often highly misleading. The following are the figures given by Dr. Dupré for the principal wines:— In four red Bordeaux (prices 12s., 15s., 30s., and 66s. per doz.) the total quantities of free acid were 77·40 grs., 72·96 grs., 74·28 grs., and 65·76 grs. per bottle respectively. In four samples of hock (prices 15s., 20s., 36s., and 72s. per doz.) the total free acids were, 67·44 grs., 57·60 grs., 70·32 grs., and 69·24 grs. per bottle. In three samples of Hungarian wine (prices 21s., 34s., and 42s. per doz.) the total free acids were, 80·16 grs., 85·92 grs., and 83·88 grs. per bottle. In four sherries (prices 22s., 36s., “high” and “high”) the total free acids were 55·32 grs., 54·48 grs., 61·16 grs., and 58·08 grs. per bottle. In four ports (prices 32s., 50s., “high” and “high”) the total free acids were, 49·56 grs., 49·56 grs., 62·16 grs., and 58·08 grs. per bottle. In two marsalas (“old” and “very old”) the total free acids were 39·12 grs. and 46·76 grs. per bottle.

When we analyse further the free acid constituents of wine, we find that they are made up of three principal ingredients—malic, tartaric, and acetic acids, and a small proportion of several volatile acids closely akin to the latter, which, however, have but a trifling influence on the acidity of wines, though they are important ingredients in flavour and bouquet.

Of the three principal acids, malic and tartaric are the direct product of the grape-juice, the former preponderating; they are fixed, or non-volatile. The acetic, and other volatile acids, are the consequence of fermentation, and of the slower oxidizing processes which go on after fermentation. Supposing the total amount of

free acids to range (as it does in sound wines) between 4 and 6 per 1,000, the volatile acids should not exceed one-fourth of this amount in the case of white, or one-third in that of red wines. More than this indicates that the wine is losing its vinous character and turning to vinegar.

Now as regards the acidity of wines, it need hardly be said here that a very popular prejudice in this country regards the light natural wines as essentially sour, and consequently, in that respect at least, inferior in wholesomeness to the port and sherry which are consecrated by English drinking traditions. Of course if we judge by mere taste this idea is correct; a light claret, or still more a light hock, will appear strikingly sour as compared with a sherry of fair soundness: one would judge that there was five or six times as much free acid in the light wine as there is in the stronger. In truth, however, if we turn to the analyses of Dr. Dupré, we find that a light claret of 1865, costing only 15s. a dozen, contains but 6·08 per thousand of total free acids, as against 5·18 per thousand in an expensive old bottled sherry of 1860 vintage; and that the proportion of acetic to total free acid is much greater in the case of the sherry than of the claret. There is, perhaps, even a more settled prejudice against hock than against claret on the score of supposed acidity; yet if we turn again to the tables we find hock at 15s. per dozen, containing no more than 5·62 per thousand of free acids, of which, again, a less proportion than in the case of the sherry above mentioned is volatile acid. The explanation of the common mistake is, of course, to be found in the large quantity of sugar (29·70 per 1,000) which the sherry contains, and which *masks* the acid; and it therefore becomes an important question, whether the

mere masking of an acid taste in this way really renders the wine more digestible.

For our own part we are totally opposed to such a view, and indeed are strongly inclined to believe that, as applied to wines, it is actually the reverse of the truth. We believe that in reality the maximum of injurious quality is reached when a wine of tolerably high natural acidity contains also a considerable amount of sugar. For (1) the dyspepsia, gout, and other symptoms which (putting aside *alcoholism*) are supposed to be *the special* results of indulgence in wine, are comparatively uncommon among the European nations who habitually consume the natural acid-tasting light wines in large quantities. (2) We have personally sought in vain for any instance where the moderate use of a really non-saccharine sherry has produced gout; and we strongly suspect that those persons who have fancied that gout was provoked in them by the use of a "dry" sherry were merely judging of the quality of the liquor from its taste, and had really been drinking a sherry the composition of which resembled that mentioned above. (3) Whatever may be ultimately shown to be the true origin of the gouty and other allied forms of dyspepsia, it can scarcely be doubted that one of their most important phenomena is an interference with the normally rapid rate of absorption of saccharine matters from the stomach, or that the presence of alcohol (especially alcohol of some strength) would increase this delay of the sugar absorption. That under these circumstances fermentative changes, with abnormal formation of acid and irritant matters, would occur in the stomach, seems highly probable. (4) It is very difficult to believe that the trifling proportion of fixed and volatile acids present in any drinkable wine would

be sufficient to disturb digestion save in persons of exceptional sensitiveness; one has only to remember the quantities of malic and tartaric acid which every one swallows during the fruit season, and the quantities of acetic acid which even the most modest consumer of pickles, sauces, and salads habitually takes, to perceive how extremely improbable it is that a wine containing not more than 6 per 1,000 total free acids should (from *that* cause) disturb the digestion of any moderate drinker of it.

It is needless to say that throughout the above remarks we are dealing with the case of wines which are fair specimens of their respective classes, and not with those which, whether from careless manufacture, or fraudulent manipulation, depart widely from the standard of sound wines.

We have spoken of the natural *acidity* of wines chiefly from the point of view of indicating the limits within which the presence of this quality is not a mark of unwholesomeness in a beverage intended for healthy adults. It would be a serious omission, however, did we not show that the free acids, provided that they are present only in the several proportions which have been already indicated, are far more than merely harmless in their action.

It is a singular thing that while the tonic powers of mineral acids, as used in medicine, have obtained universal recognition, the no less remarkable tonic qualities of the vegetable acids, which are essential ingredients of a variety of foods which we consume in ordinary life, should have been so slightly dwelt upon; one can only ascribe the fact to the vicious conventional tradition which habitually separates the action of foods from that of medicines. The value of acetic acid has,

indeed, been practically confessed in the popular use of vinegar as a so-called condiment; in plain language, a tonic to the function of primary digestion; and a more profound and important action of this substance on the organism is indicated by the empirical observation of numerous physicians and travellers, that vinegar is an antidote of no mean power to scurvy. An equally decided instinct to that which makes men crave for sour pickles, makes them crave also for sour fruits; and it is certain that a moderate use of these things powerfully aids primary digestion, more especially in the condition of digestive languor which is apt to prevail during the height of summer weather. Moreover it is probable that malic and tartaric acids, which are the principal representatives of vegetable acid in natural wines, are able to exert a real influence on secondary assimilative processes, since, like acetic and most other vegetable acids, they are converted into carbonic acid in their transit through the body; and the same holds good of that further proportion of these acids which exists in wines under the form of *salts*. On the whole, however, it may be presumed that the useful functions of such quantities of free acids as are found in natural wines are limited to their tonic stimulant action upon stomach-digestion. And that this must be a powerful action no one will doubt who has systematically observed the effects of acid (but otherwise sound) wine in restoring appetite and digestion from the state of prostration in which they are often left after an acute illness.

4. Closely connected in the minds of most persons with *acidity* is the quality of *astringency*; and indeed the latter might be plausibly regarded as a branch of the former subject, since a vegetable acid, the *tannic*, is its chief cause. But, in the first place, the astringency of

wines is essentially different from their mere acidity in its effects upon primary digestion; and secondly, there is the important physiological distinction, between tannic and the other vegetable acids of wine, that it does not undergo conversion to carbonic acid within the body.

To say the truth, tannic acid, with its peculiar so-called astringency, is the real culprit in many cases where a natural red wine of low alcoholic strength is accused of "acidity." The impression of *roughness* on the tongue is easily confounded with actual sourness. Tannic acid in wines is almost exclusively the product of grape-skins and stones, not of grape-juice. And hence it is only in red wines that it exists in any high proportion; the maximum is found in *young* dark-coloured wines, for in process of time the tannin precipitates along with an albuminoid matter, which is a notable constituent of such wines, especially when they have been only partially fermented. The colouring matter also precipitates with the tannin, and hence an old port-wine becomes "tawny." If any one wants to know what the astringent element of wine is, at its worst, he must taste some of the dark purple wines of the Valais, or of North Italy, quite new. Generally speaking, the tannin element of wine may be said to be neutral as regards its influence on persons in ordinary health. But there are wines to be met with, here and there, which when young contain enough tannin to set any ordinary teeth on edge, and to upset any ordinary digestion. We remember with horror such a liquor which we once drank at a roadside station in crossing the Simplon, and which produced the most violent diarrhoea. This wine, which was a very cheap sort, of a dark purple tint, rough-tasting, but not sour, had probably been fermented not only with the grape-

skins and stones, but also with the fruit-stalks; and as it was very new, there had been no time for the tannin to deposit.

On the other hand, the astringent qualities of red wines may become very valuable in certain morbid conditions. But this consideration does not come under our present subject; and we may take the opportunity here of remarking that a great many erroneous statements have been made in recommendation of the highly tannic wines for a daily drink, on account of their "bracing" qualities. It is only in certain limited conditions of *disease* that the tannic element of wine possesses any value: and it may be feared that doctors have inflicted much useless misery on unoffending persons, who were not ill, but merely delicate, by recommending them to drink repulsive liquids, which turn the tongue to leather, on account of an imaginary "robustness" of the latter. There is no need for this.

5. We pass now to the consideration of the *salts* of wines. The importance of the saline constituents of wine was recognised very early in the history of chemistry; in fact, the "tartar" of wine was regarded with almost mystic reverence by physicians and chemists from Paracelsus onward, and we see traces of this feeling even in the pages of a sceptical, and for the times enlightened, pamphlet published by "A Fellow of the College," in 1724, and entitled, "The Juice of the Grape, or Wine preferable to Water." Modern physiological chemistry assures us that there is a sound basis for this belief in the importance of wine-salts. The combinations of alkalies (more especially of potash) with vegetable acids, which every natural wine contains, are of a dietetic value not to be easily overrated; and in the particular function of warding off *scurvy* and some

allied diseases of malnutrition, they rise to the highest importance.

It has been already said that tartaric acid is a prominent ingredient in the majority of natural wines ; but it is not only present as a *free* acid, but largely also, in combination, as acid tartrate of potash (cream of tartar), and to a smaller amount, as tartrate of lime. There are also chlorides of potassium and sodium, phosphate of lime, and traces of silica and magnesia, besides other occasional salts. The above is a list of the characteristic saline ingredients of wines.

Among these various saline ingredients there is none other so characteristic of natural and unadulterated wine as the acid tartrate of potash ; this is especially the case with the wines of Bordeaux. For instance, of four samples of Bordeaux wine already referred to in a previous paper, we find the total *ash* (left after evaporation, and incineration of the residue) amounted to 2.35, 2.08, 2.23, and 2.00 parts per 1,000 respectively ; of this total 0.45, 0.66, 0.41, and 0.38 respectively consisted of *carbonate* of potash, the representative of the *tartrate* in the wine. In Rhenish wines there is also much tartaric acid, but a larger proportion of it is in combination with lime than with potash. In port wines, when new, there is a high proportion of tartrates, which tend to deposit with age. But in sherries as sold, even when new, there is a remarkable deficiency of tartrates, which requires special comment, because it is not a natural feature of the wine, but a result of a special process of adulteration which is unfortunately universal. Sulphate of lime (in the shape of plaster of Paris) is employed in the manufacture of these wines with a view to precipitate the tartaric acid and the albuminoid matters ; the result is strikingly manifest in the

character of the ash left by the wine after evaporation and incineration. Of four sherries analysed the total ash was found to be as much as 4.50, 5.15, 5.50, and 5.13 per thousand parts respectively; but of this large ash, only 0.07, 0.10, 0.14, and 0.07 consisted of carbonate of potash, the representative of tartrate in the wine. That means that the wine is by the "plastering" strongly impregnated with sulphate of potash, a serious evil, for sulphate of potash is a very depressing salt, and its effects might materially interfere with the stimulant action of the wine, and doubtless does so, except in the case of the old-bottled sherries, which have counterbalancing virtues of their own, to be presently noticed. It may be said, also, in general terms, that any attempt to rob a young wine of its tartaric acid and tartrates is a mistake of the most serious kind; for the presence of these substances really tends to keep the wine in good condition, and their premature removal decreases the chance of the liquor keeping well, not to mention that it abstracts a valuable nutritious ingredient for which, in its youth, the wine possesses no compensating advantage. It is to be feared that the same objectionable process of "plastering" is also followed in the case of several Greek wines, since it is difficult, otherwise, to account for the high percentage of sulphate of potash in the ash of these wines, and the low percentage of carbonates.

On the whole, we are inclined to believe that of all the saline ingredients of wine, the only ones which seriously influence the organism, and possess a real dietetic value, are the tartrates of potash and of lime, and possibly the phosphates of lime. In regard to the phosphates generally, there is one popular delusion much fostered by certain wine-dealers, and unfortunately abetted by

some hasty and ill-considered statements of a chemist of European celebrity, that the presence of these salts gives to wine an exceptional value as a nervine tonic. In reality there is not the least support, in the facts either of physiological chemistry or of clinical medicine, for the theory that salts of phosphoric acid influence the nervous system except in the most indirect manner. It is true that phosphorus is a constituent of the nervous system, and it is probable that phosphates in the excretions are partly due to disintegration of nervous tissue, but there is no proof that phosphates, administered as such, will nourish the nervous tissues; and, on the other hand, there is a great deal of evidence tending to show that their action is limited to certain changes in the relative proportions of the alkaline constituents of the blood, and in the alkaline constituents of the wine. The phosphate of *lime* stands on a different footing from the other phosphates; and although the question of its functions within the body is far too elaborate to be discussed here, there is some reason to think that even in small quantities, such as are present in wine, it may prove a valuable agent in assisting the processes of cell-growth in young tissues or in tissues that are undergoing rapid repair after disease or injury.

Upon a general review of the question of saline constituents of the various wines, there can be little doubt that, in this respect, the varieties which possess the highest merits are, successively, the wines of Bordeaux, Burgundy, the Rhine, and Hungary; that is to say, among natural wines, which must be the principal subject of our consideration in regard to the use of wines as a daily beverage.

6. We come now to what is by far the most difficult

and obscure part of the discussion upon wines: the estimate, namely, of the value of their highly characteristic secondary elements, which are formed during the period of storage. The chemistry of the subject is only in its infancy, and so much of it as is already made out is by no means easy to explain in brief outline. But the difficulty of application of such chemical facts as are known to the practical selection of wines for dietetic purposes is aggravated by the fact that the question becomes immediately complicated by secondary considerations. In dealing with those elements of wine which have already been discussed, the task was simple, for the very first of these topics—that of alcoholic strength—introduced considerations which showed that if wine is to be used as a beverage, both temperance and economy most strongly argue that the bulk of the community should limit themselves to the class of natural wines produced under such conditions as enable the cheaper varieties to be relied on as sound, wholesome, and palatable. We have now to deal with properties of wine which can only be legitimately developed by age and careful handling, and must, therefore, involve increased costliness; but which, when developed, have the most valuable effects, not merely in increasing delicacy of flavour, but in fitting the wine to supply, in a very important manner, certain special needs of life. We must, therefore, comparatively disregard questions of economy, and deal with wines from the point of view of a refined, yet not unwholesome luxury on the one hand, and of a cordial, for special emergencies, on the other. This greatly widens the field which we have to survey, for without meddling with the strictly medicinal uses of wines at all, we are bound to examine the properties of a variety of wines

especially the *fortified* kinds), which, as beverages of daily life for healthy adults, we deliberately disapprove of, or set aside as too expensive for consumers whose income is but moderate.

These substances of secondary formation are the *compound ethers*, to which wine of a certain age owes the greater part of its flavour and bouquet, and which have a scarcely less important influence in heightening the quality of the liquor as a stimulant of vital functions. The first of these results is well recognised by connoisseurs, though the most accomplished amateurs are often singularly ignorant of some important features of wine flavour; the second is most perversely ignored or misunderstood by the majority of medical men in their capacity of instructors of the public.

When the primary process of fermentation of wine has been brought to a standstill, whether because there is no more sugar to be destroyed, or because there is no more available¹ ferment to carry on the process, there remain in the liquid two kinds of substances—alcohol and acid, or rather several alcohols and several acids, which must react upon each other, producing, more or less rapidly and completely, a substitution of compound ethers for the alcohol generated by the primary fermentation. The compound ethers are of two kinds, fixed and volatile, and there is a great difference between the importance of the two classes; according to Dr. Dupré, the fixed ethers have probably scarcely any value beyond the indirect one of neutralizing a part of the acid and facilitating the formation of volatile ethers.²

¹ We say *available*, because the albuminoid substance may be only temporarily locked up by other natural constituents of the wine, or by alcohol artificially added.

² This is probably true from a chemical point of view, but is too *absolute* a statement, I think, if it be applied to physiological action.

It is the great merit of Dr. Dupré's investigations into the constitution of wines, that he has enabled us to take the first important steps in the appreciation of the relative proportions, as well as the relative merits, of these two classes of compound ethers, and has opened the way for a large amount of promising inquiry into the more obscure questions as to the physiological action of wines.

If we glance down the tables already referred to, bearing in mind the explanatory directions which accompany them, we note the following capital facts as regards the ethers of the principal European wines. Among the natural wines we find the Hungarian predominant, on the average, in the important merit of excess of volatile over fixed ethers; but inferior to Rhine and Bordeaux wines in the total amount of ethers. Bordeaux comes next, on the average, in the excess of volatile over fixed ethers, but is somewhat inferior, on the average, to Rhine wine, in total ethers. One specimen of expensive hock (72*s.* per doz., vintage 1862) exceeds any single Bordeaux or Hungarian wine quoted, both in total ethers and in the excess of the volatile over the fixed; the general composition of this wine is typical of a high-class natural white wine thoroughly fermented, and possessing all the best qualities of a bottled wine. It is interesting to contrast Greek wine with Hungarian in respect of the ethers; *e.g.*, in a white Hungarian at 34*s.* and a Greek at 36*s.* per dozen, from Dr. Dupré's tables, we observe that the total ethers are about equal, but that whereas in the Hungarian the volatile ethers are largely in excess of the fixed, in the Greek the relative proportions are reversed. The low proportion of volatile ethers in the three samples of Greek wine quoted in these tables

must be considered a not unimportant defect; and we must here mention another fault of these wines which should have been referred to previously, viz., the high proportion of volatile to fixed acids. We will also notify a further indictment of Dr. Dupré's against Greek wines, viz., that they frequently contain an appreciable amount of *aldehyde*, an oxide of alcohol, which, so far as known, is rarely or never present in any wine except when it is about to turn into vinegar. On the other hand, we are bound in fairness to mention that a very distinguished chemist, Dr. Williamson, has recently referred to the presence of aldehyde in these wines as a positive merit. Personally, we must disagree with this verdict, on the double ground that the flavour of aldehyde is, we think, extremely disagreeable, and that this substance is more likely, from what we know, to be injurious than useful as a physiological agent. Without pretending to give a final judgment, or one intended to be universally applicable to Greek wines, we may certainly say that supposing the analyses given in Dr. Dupré's tables to represent at all fairly the average composition of these wines, it would appear that as a class they are rich in promise rather than in performance as yet achieved: since the concurrence of the several peculiarities which have now been named points with much force to the conclusion that, from some reason, the capacity for keeping sound in bottle is defective. On the other hand, we must say that from a recent careful tasting of a number of these wines, we have recognised unmistakable natural vinous quality of a high order in several which are quoted at moderate prices, and we are inclined to believe that as *medicinal* agents they will be found very valuable. We also rather believe that the defects in keeping power

which seem to be indicated by the peculiarities above mentioned depend solely on imperfections in the present mode of manufacture, and we venture to doubt whether Dr. Dupré's anticipation, that the climate of Greece will not admit of the perfection of wine-making, is just. It would be a thousand pities if a country so rich in capacity for the production of full-bodied and rich-flavoured natural wines, with an alcoholic strength conveniently intermediate between the wines of France and Germany and the fortified liquors of Spain and Portugal, should prove unable to bring its products into the European markets in a state of perfect soundness. At any rate, there is no reason to believe that the experiment has been fairly tried as yet, and we may hope that the same energy which has done so much to introduce Greek wines to general notice will be successful in perfecting their preparation.

We turn now to the ethereal constituents of the fortified wines, taking port, sherry, madeira, and marsala as sufficient examples for practical purposes. We at once notice the fact that these wines, as a rule, only very slowly develop any considerable quantity of volatile ethers. From the quantity of alcohol and of acids present in the wine from the first, one would suppose that a large quantity both of fixed and volatile ethers must be formed, but, as a matter of fact, one finds in a port two years in bottle (price 32*s.*) only 0·430 per thousand total ethers as against 0·415 per thousand in a thin 12*s.* claret of the same age; and, on the other hand, the claret has altogether the advantage as regards *volatile* ethers, which it contains in the proportion of 0·235 to 0·180 fixed, while the port has 0·302 fixed and only 0·128 volatile per thousand. The dosing with alcohol

which port undergoes, not merely arrests the primary fermentation processes, but delays indefinitely the vitally important processes of etherification. Even so old and, in many respects, splendid a wine as the port of 1851 does not contain quite so much volatile as fixed ether, though the total amount of ethers is high. The wine of 1842, on the other hand, yields a very high total percentage of ethers, of which a rather larger part is volatile than fixed. This is a magnificent wine as regards every item of its composition, and where it has been judiciously kept is still in first-rate order. The alcoholic strength is only 18 per cent., and there are but 130 grains of sugar to the bottle; the wine also still contains a high proportion of tartrates, as is evident from the ash. The wine of 1851 is yet more moderate in alcoholic strength (15 per cent.), contains also a high proportion of tartrates, but has the advantage, or disadvantage, according as we take it, of containing more sugar, viz. 235 grains to the bottle—quite enough to make this delicious drink a gout-provoker for predisposed persons; indeed even the '42 wine will sometimes act in that way.

One has been accustomed, of late years, to hear port-wine abused with indiscriminate vehemence, and there can be little doubt that in its young and rough state it is a barbarous drink, however much its most objectionable features may be disguised by the presence of sugar and spirit. Put aside the question of expense, however, and it is simply dishonest to deny that port-wine can be procured which represents nearly all the elements of a fine wine at their best; and for certain special purposes to be named presently it is as singularly useful as it is undoubtedly agreeable to a refined palate.

Marsala, which is easily and cheaply procured in

sound condition, is a really fine wine in many ways. A very old wine of this sort was found to contain a high total percentage of ether, of which, however, the fixed were still in excess of the volatile. Marsala is free from the defects of "plastered" wines.

The case of sherry is singular among fortified wines, and affords a good instance of the way in which a popular cry confounds things which are utterly distinct in one condemnation. At the present moment there are hundreds of persons who imagine that all sherry is, from first to last, a coarse sophisticated drink, of the same general character and strength as port, and like it to be utterly repudiated by reformers in wine. Doubtless sherry has the fault of being universally fortified; and it is also mischievously affected by the "plastering" already mentioned. But, on the other hand, it is remarkable that in sherries, from an early period, a high proportion of volatile ethers is developed; and an expensive bottled sherry of the 1857 vintage mentioned in Dupré's tables presents about the highest development of this quality which it is possible to find in any wine. There is no reason, then, that even a young sherry (two years in bottle), if genuine, should not present the most important characteristics of a well-made wine; while, as regards the older specimens, analysis fully confirms the opinion which, personally, we have long entertained—that of all the strong wines there is none to compare, either in generous character or in delicacy of flavour, with a really fine old bottled sherry. We shall revert to this point when we speak of the employment of the stronger wines in the treatment of disease; at present we must introduce some remarks on special dietetic uses to which the more potent wines are particularly adapted.

And first, as regards the infancy of delicate children. Of all the subjects on which conventional morality has talked pernicious nonsense, there is none upon which, in a small way, it has done more decided mischief. The worthy teetotallers have easily enlisted the sympathies of persons whose experience of the management of children was limited, when they have declaimed against the practice of "rearing drunkards from the cradle," &c. &c.; and it is, of course, quite possible to do even so dreadful a thing as this. But the judicious use of wine as a part of the diet even of quite young children (of course always under medical sanction) is entirely free from such dangers, and, on the other hand, may do positive good of a very visible kind. The cases in which it is useful (we are now talking of children not absolutely diseased) are, (1) those where a tendency to wasting is very marked,—i.e. where children are very apt, without positively seeming ill, to run down suddenly in flesh, with or without simultaneous failure of appetite; and (2) those where trifling catarrhal affections are very easily caught, and very slowly shaken off. We are firmly convinced that multitudes of such children have been allowed to slide into confirmed ill-health, and then into organic disease, who would have done perfectly well had such symptoms as the above been attended to by the administration of wine. Now the right way to deal with children about wine is precisely the reverse of the plan which is appropriate for adults. The latter should be advised to take wine only with their meals, and the problem, therefore, is to find for them a light natural wine which may safely be used as a beverage. With children, on the contrary, it is much better to give wine at separate hours, as if it were strictly a medicine; and the potent

wines, disguised and made somewhat disagreeable by the addition of bitters, are much the best: for example, a teaspoonful of sherry or port made up to a tablespoonful with strong infusion of gentian, which might be given three times a day to a child of three or four years old; or even double this quantity may sometimes be advantageously given. But the point which we wish to dwell on more particularly here is the superiority of sherries to all except the most *recherché* kinds of port for this kind of purpose. The improvement of appetite and nutrition, which is sometimes marvellous in young children who have been put on an allowance of wine, is never observed in so striking a degree as after the administration of wine containing a high proportion of volatile ethers. Even a common 30s. sherry, such as any respectable wine-merchant will supply, is more highly gifted in this particular respect than any port which is within the reach of ordinary purchasers. It is therefore a point of much consequence that in prescribing wine as supplementary food for children whose parents are not wealthy we should recommend sherry rather than port. Sherry is also markedly superior to marsala for this purpose.

Used under the precautions above given, not merely is there no danger of wine corrupting children's tastes, but the services it renders to health are more important than those of any medicine with which we are acquainted; indeed, it is just in the cases where medicines would disorder the stomach and aggravate the child's *malaise* that wine plays the most remarkable dietetic rôle.

As a dietetic aid in the debility of old age the more potent wines are even more remarkably useful than in infancy and childhood. More particularly in the

condition of sleeplessness, attended often with slow and inefficient digestion, and a tendency to stomach cramps, a generous and potent wine is often of great value. It is not desirable for such persons to include a large allowance of fluid in their daily diet, and their alcohol may well be taken in the more concentrated forms. Moreover, the fine volatile ethers which develop in well-kept old bottled port and sherry have an extraordinary influence in heightening the stimulant and tonic influence of alcohol. But in this category sherry is to be reckoned as a much more convenient agent than port, because we are able to get the specific effects of the volatile ethers at a much more reasonable price in the case of the former than of the latter wine.

One very important effect of the highly etherized wines, which are at the same time of rather high alcoholic strength, is their power to produce tranquil and prolonged sleep in aged persons. Supposing that we allow an aged person eight ounces (four glasses) of sound sherry for total daily alcoholic allowance, then we shall afford him the maximum of comfort by ordering that half this quantity shall be taken, with some light food, at his supper hour. Considering how simple a prescription this is, it is surprising how often its value is ignored by medical men, though the popular custom of a "night-cap" of toddy for old people, even when they have been little accustomed to alcohol in their younger days, shows the existence of a need for some agent of this kind. Plain alcohol is, however, a much less efficient hypnotic, unless taken in objectionable quantities, than the highly etherized wines; and no spirit, except the finest and most expensive old cognac or rum, approaches good sherry in this kind of value. In all probability it is precisely the ethereal constituents

of such old bottled spirits which give them their hypnotic and calmative power over the nervous systems of the aged.

We here conclude what we had to say about the dietetic use of wines by healthy persons. It was never our intention to dwell in detail upon the merits and demerits of individual wines, except as they fall into main groups which illustrate leading dietetic rules. It was our object to lay down certain great principles which ought to govern the selection of wines for daily use, and especially to show how wine might be made the wholesome beverage of ordinary life rather than a dangerously seductive luxury, leading easily to mischievous excess. We have purposely abstained from dwelling upon such wines as fall merely within the category of luxuries for occasional indulgence; but some of them, which are either too expensive, or in other ways objectionable for daily consumption, will find an important place in the remarks which we shall have to make in Part II. on the use of wines in disease. For the present we may be content with the following summary of the points we desire to insist upon:—

1. Wines for daily use by healthy adults should not on the average contain more than 10 per cent. absolute alcohol: 8 or 9 per cent. is better.

2. If wine be used as the daily drink, it is best, as far as may be, to use only one kind at a time, and no other form of alcoholic liquid.

3. Sound natural wines are to be obtained at the best economic advantage from the Bordeaux district; the red wines are to be preferred.

4. Rhine wines (white) are equally excellent, but more expensive.

5. Hungarian wines are also, in many instances, excellent, but are at present too dear for daily use except by the rich. They are also unequal in quality, owing to defects of manufacture.

6. Greek wines labour under the same defects: under the latter, especially, in an aggravated degree.

7. The fortified wines, as a class, develop no proper vinous qualities till they have been for some years in bottle. Sherry, however, is greatly superior to the other wines of this class in the rapidity with which it develops the volatile ethers.

8. Fortified wines in small quantities, especially sherry for the reason just named, are the appropriate stimuli of certain kinds of infantile and youthful debility, and of the enfeebled nervous system of old persons.

Finally, we may add a few words in correction of a statement which by ambiguity of phraseology, may lead to misunderstanding. We did not intend, when recommending the "hard-working *student*" to allow himself a bottle per diem of weak Bordeaux wine, to give that recommendation to young lads. We were thinking of "hard-working students" of middle age; and we would state our very firm conviction, that for youths (say under 25) whose bodily frame is as yet not fully consolidated, the proper rule is, *either no alcohol or very little indeed.*

From the time of puberty onwards, there arises a much greater susceptibility to the injurious influences of alcohol upon the emotions and the character; and between the date of puberty and the age of 25, or even 30, it would be better, in ordinary cases, either to abstain altogether, or to limit the allowance to one-

third or one-half the amount above named. Still, there can be no question that to many rapidly-growing lads an amount of alcohol (preferably as beer) strictly limited to these latter quantities, is not only harmless but most actively useful.

PART II.

ON THE USES OF WINES IN DISEASE.

SECTION I.—WINES IN ACUTE DISEASES.

THE questions which we have to discuss, in considering the uses of wines in disease, are much more numerous and difficult than those which we dealt with in speaking of wine as a beverage in health; and if we expend comparatively fewer words in discussing them, this will arise from the fact that our knowledge is here very much less extensive and accurate, so that we can but present an imperfect outline of the subject. We believe, however, that some important principles, which have never as yet been expressly laid down, may be gathered from a systematic study and arrangement of the facts already known to practical physicians.

We propose first to deal with what is by far the most important portion of the therapeutics of wines; the use, namely, of these liquors in acute diseases. A few preliminary words are necessary, in order to define the class of maladies which we include under this title.

Acute diseases, as we understand the word, are affections in which danger to life, or notable damage to tissue, is rapidly produced; or in which, at any

rate, marked and characteristic trains of symptoms are quickly set up. They are divisible into two chief groups, as regards their relation to alcoholic treatment, viz. the febrile and the non-febrile.

1. The febrile acute diseases include the exanthemata and the other epidemic fevers, and also the acute inflammations, whether primary or supervening on injury or surgical operation, or complicating a previously existing disease.

In commencing the discussion of the use of wines in febrile acute disease, it is necessary to say a few preliminary words as to the circumstances which induce us to prescribe alcohol at all in such maladies. Not to occupy space with unnecessary detail, we may say broadly that the combination of high temperature, especially when persistent, with delirium or other evidences of nervous prostration, great rapidity with a high degree of dirotism of the pulse, and especially a tendency of the latter to become unrhythmical in such a manner as to show rapid and irregular changes in the *force of the heart-beats*—all these strongly indicate the use of alcohol, and when they manifestly diminish under the influence of our first experimental doses we are confirmed in our opinion. Again, there is a class of inflammatory affections, chiefly represented by pneumonia and bronchitis of the aged, in which all the other symptoms above mentioned may be present without the high temperature; in these cases also alcohol is strongly indicated. The safest guide beyond comparison to the use of alcohol in all acute diseases is the condition of the pulse; the existence of marked dirotism with great rapidity, especially when combined with any irregularity, is a far truer indication than any consideration derived from the stage at which the illness has arrived.

With regard to most of the acute febrile diseases, it may be said that alcoholic liquids are to be prescribed primarily, if not only, for the sake of the alcohol which they contain; the only other points of consequence being that the other ingredients of the liquor shall be harmless to digestion. For the most part, then, we shall simplify matters by ordering plain spirit properly diluted with water in these cases; and the use of wines is unnecessary. This is especially the case where the febrile temperature runs high persistently during several days; and, generally speaking, in the early stages of severe pyrexia which is to last for some time. The distinctive uses of wine in acute febrile disease are of a different order, and may be divided under two heads. The ethereal constituents of wine have a special value in the later stages of severe febrile disease with great exhaustion of the heart, especially when combined with sleeplessness. On the other hand, a low alcoholic strength of wine, together with the presence of carbonic acid, as in the finer effervescing wines, is particularly useful in cases where the violence of the fever, the nervous prostration, and the derangement of digestion are out of proportion to the gravity of the case as regards danger to life and continuous destruction of tissue.

(1.) A most important* and too little recognised distinctive indication for the highly ethereal wines is to be found in the condition of cerebral and cardiac exhaustion which is so well seen, for instance, in the third and fourth weeks of a severe case of typhoid fever. Here the chief danger unquestionably arises from the weakness both of the nervous and muscular forces of the heart. The special combustive processes have for the most part spent their force; the danger is

from the failure of the heart. Under these circumstances we shall, I believe, do best by throwing aside brandy, unless we can procure the most *recherche* kinds, which are rich in ethers, and betaking ourselves to the use of the finest old port or sherry, or to some of the more excellent qualities of Rhenish or Hungarian wines. From six to twelve ounces per diem of fine old sherry, or from eighteen to twenty-four ounces of the Hungarian wine known as dry Ruster, given in divided doses at intervals of half-an-hour, affords the ideal stimulant required under the circumstances; it is surprising how rapidly this treatment at the same time restores strength and regularity to the heart's action, and calms the nervous system, so as to allow of sweet and restorative sleep. It is useless here to think about cost; the very finest wine that can be procured for money is just that which will procure the effect we desire with the least possible delay. The physicians of the Westminster Hospital have had abundant opportunities of observing the effects in such circumstances of a very splendid old sherry, of which the late Duke of Northumberland presented a large quantity to the hospital; and for our own part we are convinced that the influence of such a liquor is something entirely distinct from that of its mere alcohol.

Another instance of acute disease in which profound exhaustion threatens a disastrous failure of the heart, is that form of insanity known as acute delirium. We can hardly express too strongly our sense of the superiority of highly etherized wines to merely potent alcoholic liquids in these cases. We have been informed by alienist physicians, whose larger experience only confirms our own, that the calming and reviving influence of such wines as we have just referred to is of

inestimable value. In such cases there is commonly no very great elevation of temperature; but every one who has seen much of this terrible form of disease must be aware with what alarming rapidity the nervous system and the heart succumb. It is by no means always necessary to give large quantities of the stimulant. Sometimes a very few glasses will suffice to restore the patient to a condition in which he becomes willing to take those supplies of food which are of the first importance for his safety; and, above all, the efficacy of this treatment in inducing sleep is of the utmost consequence to the patient. In short, though alcohol as such seems to have little influence over the progress of these cases, it is quite different with the effect of wines of the highly etherized class. It is not asserted for a moment that their effect is specific; like everything else, they will often fail to do good; but it may safely be said that, with the exception of food, chloral, and occasionally of bromide of potassium, nothing offers so good a prospect of success.

The general result to which the best observation we have been enabled to give to this subject during a good many years of special study has led us, is as follows:—We believe that the administration of potent alcoholic liquids is especially appropriate to the period of severe and persistent febrile disturbance—in fact, to the early, or at any rate the middle period of acute febrile disease; and that if this treatment be judiciously adopted, the ultimate stage of cardiac exhaustion is often mitigated or entirely prevented. But if once this stage of exhaustion be reached, we believe that the largest doses of alcohol as such will be unable to restore the flagging power of the heart; whereas a wine of comparatively feeble alcoholic strength, but rich in volatile ethers, will

often prove marvellously efficacious in sustaining the nervous power of the heart till its enfeebled muscular tissue shall have had time to repair itself.

(2.) There is a very different set of circumstances in which febrile symptoms may call for the administration of wine; viz. the catarrhal inflammations, the ephemeral form of catarrhal fever, and the true contagious influenza: in all these wine is not unfrequently useful, but we are convinced that the weak *effervescing* kinds are the really valuable form, while the more strongly alcoholised varieties as often do harm as good.

To take first the case of catarrhal inflammations: it is possible, we believe, to establish an ascending scale of suitability for wine treatment. Catarrhal inflammations of the stomach rarely either call for, or tolerate, alcohol in any shape: but occasionally when they occur as part of a general catarrhal affection which involves a considerable amount of prostration, a moderate quantity of sparkling wine may be given with advantage.

Somewhat more frequently is this kind of wine useful in the catarrhal diarrhoea—the acute intestinal catarrh—of summer and autumn. In the majority of such cases no alcohol is required; the patient needs only to limit himself for a short time to a system of eating very small quantities of food (not necessarily mere slops) at short intervals, and preserving rigidly the recumbent posture. If any irritating food requires removal from the bowels a mild rhubarb purge will be useful; and if any further medication by drugs be found necessary, opium, with or without mineral acids, will commonly do best. But if the diarrhoea obstinately continues for several days, as is especially apt to occur when the patient cannot keep the recumbent posture, but must move about more or less, then the greatest benefit will

often result from putting him upon a ration of ten or twelve ounces of champagne daily, discontinuing all medicines. If the patient can afford it, some good turtle-soup is an excellent addition to this fare.

Still more marked is the good effect of light effervescing wine in that form of epidemic catarrh which is accompanied with low inflammation and ulceration of the throat, and which is apt to assume an epidemic type. The patient cannot bear to swallow solid food: yet he often gets low and depressed under even the most continuous feeding with milk, beef-tea, &c. ; while on the other hand strong wine or brandy frequently proves heating, and increases his discomfort. Here champagne to the extent of a pint bottle per diem often most materially assists recovery, and, what is scarcely less important, it greatly relieves the sense of depression and misery.

There is a form of ephemeral catarrhal fever which may attack any one, but to which certain individuals are especially liable; it may be induced, apparently, by almost anything which greatly depresses the nervous system, but its access is commonly precipitated by catching a chill, though the latter may be very slight. In such persons the attack is often attended for a day, or for two or three days, with such a considerable febrile heat as to alarm the bystanders, and to suggest the idea that one of the more serious fevers or inflammations is about to declare itself. The writer has had considerable experience of the treatment of this affection, and can assert, with much confidence, that it may be very effectively dealt with by a treatment consisting simply of, (a) perfect rest in bed, (b) a diet exclusively of milk, which may be drunk *ad libitum*, and (c) an allowance of a pint of light champagne in the twenty-four hours;

and this is the plan we would generally recommend. A single dose of opium at the very outset of the symptoms may sometimes arrest the attack altogether; but if this fails it is best to dispense with medicine altogether, and simply follow the above directions.

Not less effective is this kind of treatment in many cases of true contagious influenza; but where the disease is very severe, and threatening to life from acute chest complications, it may be necessary to feed generously with soup, and to allow eggs and brandy freely.

We desire to call attention to what seems a very important distinction between the kind of pyrexia which distinguishes the severe contagious fevers and the severe tissue-inflammations, and that which attends a large number of catarrhal affections. We believe that, whereas in the former group of cases the elevated axillary temperature, the flushed face, and sensibly burning skin are a true index of greatly heightened combustion-processes within the body, in the latter they are commonly in great part due to an *altered temperature distribution*, owing to more or less generalised *paralytic dilatation of the peripheral arterioles and capillaries*. If this be true, it has a most important bearing on the question of the administration of alcohol. Large amounts of the potent alcoholic liquids are, we believe, only required in those cases where there is evidently an amount and kind of pyrexia which can only be due to greatly increased processes of tissue-waste, or enormous cell-formation, or both. We do not mean to say that even here we would counsel any routine employment of alcoholisation: here as elsewhere, we would make the quality of the pulse, and its behaviour under experimental doses, and above all, the appearance or non-appearance of unchanged alcohol in the urine, the true guide to practice. But in

the catarrhal fevers and inflammations, where we believe that the apparent elevation of temperature is so often deceptive, we recommend the use of alcohol, when it needs to be used at all, only in such small quantities and such a diluted form as to act mainly as a modifier of sensation and brain-function, relieving the tendency to cerebral stupor, and the painful aching of limbs, &c., which are so common; and for this purpose the effervescing form is especially adapted.

It is quite otherwise, again, in the true tissue inflammations, which tend to the formation of lymph and of pus within the substance of organs. Here, also, there is no routine principle for or against the use of alcoholic liquids; each case must stand upon its individuality: but the cases that do call for these liquids demand them, we believe, for the sake of their alcohol; and consequently there is no advantage in the use of wine over that of spirits, but rather the reverse, at any rate in the acute stages. According to the most recent information we must at least provisionally believe that alcohol subserves a double purpose in acute inflammations—(a) that it tends to check excessive combustion of tissues, and (b) that (as Binz shows) it checks the migration of blood-corpuscles through the vascular walls. It is only in the latter and exhaustive stages of inflammations, especially of such as tell heavily upon the heart, that we find an indication for the highly ethereal wines: we may especially mention rheumatic pericarditis in this category. We shall not easily forget the remarkable effects which we saw in one particular case of this kind from the administration of a fine old Rhenish wine, highly charged with ether, and of magnificent odour; the feeble rapidly-flickering heart came back to a comparatively strong and steady beat, and the irrit-

ability of intense nervous prostration was wonderfully calmed. It is needless to say that for such a purpose as this no crude or unduly acetous wine can be tolerated; it would be the worst economy not to give the best that money can procure.

Before we conclude this present paper we must add a few words that should have been said above, respecting the administration of champagne in the catarrhal fevers and inflammations. The wine itself should be chosen with great care: it should have not above 6 or 7 per cent. of absolute alcohol, and at the same time be very dry; the presence of any considerable amount of sugar makes champagne quite unfit for the stomach of a fevered patient. One "pint" bottle will contain about 6 drachms absolute alcohol in such a wine as we are now recommending. We recommend that not more than half a champagne-glassful be given at once; but if the patient likes to fill up the glass with seltzer-water, and sip it more slowly, he can do so. It is a decided mistake to *over-ice* the champagne, but it should be moderately iced in summer weather. In temperate weather it should not be iced at all, but simply kept in a cool place, in water.

2. We come now to the subject of wine-treatment in the *non-febrile* acute affections. In this group we include (1) the occurrence, from any cause, of hæmorrhage to such an extent as to constitute of itself a rapid danger to life; (2) the acute neuroses; (3) the condition of shock-collapse, whether from extreme emotion, from violence, or from severe surgical proceedings.

(1.) Before we discuss the relations of wine to individual varieties of hæmorrhage, let us try to lay down certain broad principles as to the indications and contra-indications of alcoholic liquids generally, in cases of

dangerous bleeding. Now there are two objects with which we may give alcohol in dangerous hæmorrhage—either we may desire to stimulate a heart which is in danger of stopping from syncope induced by excessive anæmiation of the nervous centres, or we may hope to produce contraction of the relaxed peripheral vessels, and thus directly assist the efforts of nature to arrest the bleeding. And there are likewise two corresponding dangers in the use of wine; for on the one hand we may over-irritate the heart and cause such an increase of the force and rapidity of the circulation as may increase or renew a bleeding which tended to spontaneous arrest, or on the other we may overshoot the intended effect upon the peripheral vessels, and induce paralytic dilatation instead of contraction of the latter. To take first the case of threatened syncope, it may be at once admitted that a certain amount of severity of this symptom forms a positive indication for alcohol which over-rides every theoretic objection, because the danger is not merely that of suddenly fatal heart-stoppage, but also of a more gradual and more deadly arrest of the cardiac pulsations by the formation of coagula within the pulmonary artery—a peril which reaches its maximum in subjects whose blood, from any cause, is hyper-fibrinous. Putting aside the case of great syncopal tendency, however, it may be said that on the whole the balance is heavily against the use of alcoholic stimulation in acute hæmorrhages generally. And further, it may be laid down as a general principle that the danger from exciting too violent cardiac action is greatest in cases where the hæmorrhage either comes from organs—like the lungs—which are anatomically near to the pulsating centre, or from a large artery in any part of the body, especially if there be reason to think that the vessel is diseased.

There remains, however, a not inconsiderable class of cases in which the tendency to hæmorrhage is mainly due to, or its dangerous continuance is mainly kept up by, a relaxed and atonic condition of the smaller arteries and the capillaries; a condition which is perhaps most frequent and most prominent in the menorrhagic discharges of women of lax fibre, and in the intestinal hæmorrhages of typhoid patients of a similar constitutional type.

In considering the special uses of wines in acute hæmorrhage, we must keep in mind the distinction between (*a*) effects intended to be produced on the heart, and (*b*) effects intended to be exerted on the peripheral vessels.

(*a*) In regard to the heart, there are two kinds of indications which may decide us in the first instance to give alcohol, and then to select certain wines as the appropriate form.

In the first kind there is so large a loss of blood, either absolutely or relatively to what the patient can afford to lose, that the nervous centres are drained of blood and force to a degree that immediately threatens life. Here, though wines may be useful, it is chiefly on account of their alcohol, and only the more potent kinds, in large dose, can avail to meet the danger. We need hardly mention the case of enormous postpartum hæmorrhage, which is so familiar; there is scarcely a practitioner who has not once or twice in his life seen, with amazement, women of temperate habits swallow as much as half-a-pint or a pint of brandy or a whole bottle of port under such circumstances, without the least intoxication, and with the sole result of a resurrection from almost absolute death. It is difficult to explain these remarkable effects on any other theory than

that of an enormously rapid oxidation of the alcohol, and consequent development of nervous and muscular force available for the desperate needs of the organism.

A second variety of quasi-syncopal cases is, we believe, essentially different in its indications, as it certainly is in many outward features. Everyone has seen and recognised the above mentioned cases of extreme and sudden anæmiation, with dead greyness of the face, faint indigo coloration of the lips, restless jactitation of the limbs, and slow flickering pulse collapsing at the lightest finger-touch. There are fewer, perhaps, who have adequately recognised another group of hæmorrhagic cases, in which the heart is also deeply involved, but in another manner. In these patients, of whom much the greater number are women, both pulse and countenance might readily deceive a careless observer as to the source of mischief, for the complexion is not steadily pale, but changes from red to white, or even, in some cases, scarcely suggests the idea of pallor at all. The peculiarity of the case is, however, best marked by the state of the pulse, which is *very* rapid, and apparently still of considerable volume. It has occurred to ourselves to hear such a pulse described as "bounding;" but strict attention (even without the use of the sphygmograph) will detect that the beats are more or less unrhythmical, and that the artery is easily compressible. Now the tendency of these cases, we venture to believe, is very different from that of the last mentioned kind; and the danger is not so much of positive arrest of the heart's action, as of serious occurrences on the side of the nervous system. Instead of the generally diffused exhaustion of the nervous centres which is indicated in the more ordinary cases of acute hæmorrhage, by simultaneous disturbance of

consciousness (*without* insensibility), and a tendency to *general* "jactitation" (slight clonic convulsions), there is here a tendency to convulsions of an epileptoid character, sometimes so like true epilepsy as to be undistinguishable from it. Before we discuss the pathology of these cases, which is a doubtful matter, we will say, with more confidence, what is their appropriate treatment; for upon this point there are considerable grounds for forming a distinct opinion. We believe that any large doses of alcohol, especially in the more concentrated forms, are likely to be productive of nothing but mischief. Unlike the case of true epilepsy, where a stiff glass of spirit and water (though a most unadvisable remedy) has nevertheless indubitable power to stop or modify an impending fit, these semi-hysterical cases are seriously complicated by narcotic inebriation, and in every way made worse, by the adoption of any such treatment. It is quite otherwise, however, with the effect of such a stimulant as a glass of light champagne; the reviving effect of this upon the nervous system at once exerts a remarkable steady influence on the circulation, calming and at the same time fortifying the heart's action. It must be understood that we do not recommend this treatment for hysterical states, with rapid and irregular pulse, which are *not* dependent on hæmorrhage; the cases are essentially different. What is the real pathological import, then, of the cases we have just been considering? We can make no more than a strong guess, and it is this: that the patients whom we have now described are for some reasons — probably of inherent constitution — more liable than others to break-down of the functions of the medulla oblongata, and that the phenomena observed are in fact the result of the influence of hæmorrhage

upon the vagus and vaso-motorial centres which the medulla contains, the rest of the nervous centres remaining comparatively unaffected. It is but a speculation, certainly, but at present we can suggest no other explanation of the facts; and on the other hand, the effect of a slight but rapidly-acting stimulant like champagne upon the vagus and vaso-motor centres might well be expected to exercise the calmative and regulating influence on the circulation which it appears actually to produce; and at the same time to avert the tendency to epileptoid convulsion.

(b) In what regards the possibility of producing a beneficial increase of tone in the peripheral vessels, by means of the use of wine, and so helping the natural arrest of passive hæmorrhage, we are able to say but little in the way of exact indications. It is doubtful, even, whether the peculiar ingredients of wine offer any additional advantage, in this respect, over merely alcoholic liquids. The most remarkable instances of this kind are shown in the occasional effect of stimulants in checking menorrhagia which is not dependent on positive organic disease, but rather on want of tone of the uterine vessels, and it is well to note a broad and decided distinction between the proper method of administering stimulants in these cases, and that which obtains in the case, which might at first sight seem analogous, of post-partum hæmorrhage. The principal machinery of arresting bleeding in the latter case is contraction of the uterine walls, and very large quantities of alcohol may be useful, and even absolutely necessary, for this purpose. It is otherwise with the passive hæmorrhage of the non-impregnated uterus; here we apply the stimulus rather to the vessels themselves; and it behoves us to be careful that we do not overshoot the mark, and

produce narcotic dilatation, instead of tonic contraction of the arterioles and capillaries; nor is it common to find that large doses are of any advantage—on the contrary, they usually do harm. In such cases the remedy should be used in a careful and tentative manner, and the sphygmograph might be advantageously employed to test its effects upon arterial tone. If the signs of increased tension coincide with diminution of the hæmorrhagic tendency we have the happiest evidence that the alcohol is doing good. It is advisable, in such cases, to employ the more potent wines, in small doses (half an ounce), five or six times a day.

(2.) The acute neuroses frequently call for the administration of alcohol, and in a good many cases wine is preferable to any other form. Of these the most conspicuous example is unquestionably afforded by severe infantile convulsions. It is needless to say that in the majority of such affections some source of peripheral irritation forms an important factor in the malady, and that the removal of this, when possible, above all things demands our attention. Sometimes, indeed, the mere removal of the irritation at once subdues the convulsions; this is most frequently seen where gastric or intestinal irritation is present. But we must remember two things: first, that convulsion does not follow peripheral irritations, unless these are very severe, except in subjects whose nervous system is in a state of morbid irritable debility; and secondly, that the continuance of convulsion may produce irreparable mischief before we can thoroughly remove the peripheral irritation. In the convulsions of dental irritation, for instance, we are now aware that such local remedies as gum-lancing are seldom of any avail, the real source of mischief being the compression of the trigeminal nerve-fibres by the

tight packing of the growing teeth in the jaw. Under these circumstances our true resource is in brain stimulation; and incomparably the most effective stimulant for the purpose is a tolerably potent wine which is also rich in volatile ethers. No medicine can effect half as much good as port or sherry of good age and keeping; the latter is the more accessible, and our own experience leads us to rely upon it with implicit confidence. For infants under one year, half teaspoonful doses should be prescribed every half hour till the symptoms begin to decline; and it is seldom indeed that this result is not produced in a short time if the treatment be steadily pushed. Still more necessary is this kind of stimulation when from improper feeding the infant has been practically starved, and the irritability of the nervous system thereby indefinitely heightened.

Another case of acute neurosis in which the value of the potent and also highly etherised wines can hardly be over-rated, is the acute form of chorea which threatens life, and which in so many instances actually does prove fatal. Here there is very often a tolerance for large doses which is extraordinary, and so long as we keep below the line of narcotism, and administer the stimulant with regularity and watchfulness, there is no need for timidity as to quantity; the danger is pressing, and a very large total daily allowance may be absolutely necessary. Unquestionably, however, a vigilant discrimination must be made between different patients, for whereas the naturally feeble and anæmic patients, especially when the attack has been precipitated by severe emotional shock, almost universally require the free use of wine, there is a smaller group in whom constitutional and nervous debility has a much smaller, and some functional irritation a much larger share;

and these are often more amenable to the influence of bromide of potassium than to that of wine. The occasionally severe chorea of pregnancy is an example of this class, and also the acute chorea sometimes produced by excessive masturbation.

As regards tetanus, the question of alcohol treatment may be said to be in a transitional state. The free use of alcoholic stimulation might have been fairly said, ten years ago, to offer by far the best chance to the patient, and in fact many recoveries took place under this treatment. Certainly it was far better than the unlimited use of opium, or of chloroform, which were much the commonest methods. At the present moment, however, several new remedies are putting forward high claims to confidence in tetanus: of these Calabar bean, nicotine, and ourara are supported by a mass of important testimony, and a certain amount of evidence exists in favour of chloral. Personally, we are inclined to believe most strongly in nicotine, and next to this in Calabar bean, and at the present moment we should certainly try one or other of these, in preference to alcoholic stimulants.

The case of delirium tremens may be mentioned here only to repeat the emphatic protest which we have always made against the employment of alcohol at all, except in rare instances of thoroughly broken-down old drinkers. We are not at all sure that even this qualification will not soon be rendered altogether unnecessary.

Very acute neuralgia may sometimes appear to demand the use of alcohol; and the power of alcoholic stimulants, especially of good sherry, to relieve such pain is an unquestionable fact. But there are the gravest moral objections to such an employment of

alcohol, and in fact the only case in which we should be inclined to recommend its use is that of angina pectoris threatening life. Even here sulphuric ether or nitrite of amyl are far better remedies. If wines are used, they should be of the highly ethereal kinds.

To conclude what we had to say on the use of wines in acute neuroses, let us insist for a moment on the distinction between their case and that of the chronic neuroses. Alcohol, whether as wine or in any other form, is employed in the former case to save life, or for some other grave emergency. In chronic nervous diseases this excuse does not exist; and on the other hand, as we formerly attempted to show,¹ the temptations to alcoholic abuse are exceptionally great.

(3.) We have next to consider the state of nervous shock-collapse in relation to the use of wine; the condition in question may be caused either by violence, by some surgical operations, or by extreme emotion; in either case its essential features are the same. The pulse is small and also soft, and is usually irregular in force or in rhythm, or both; the skin is cold, the pupils, more frequently than not, dilated, and always markedly inactive. Consciousness may be variously affected, up to entire insensibility, and down to a mere apathetic condition, with scarcely any loss of intelligence. We would draw attention to the fact that this state is decidedly different from another with which it is often confounded, and which is perhaps the most ordinary result of mental shock; in the latter there is first of all a condition of distinct *rigor*, followed by palpitation, flushing of the face, violent and irregular pulse. The two conditions are not only physiologically but therapeutically

¹ Vide *Practitioner*, July, 1869, "Indiscriminate Stimulation in Chronic Disease."

distinct; and although the depression may seem equally in the last case as in the first, we must not allow ourselves to be deceived. In the case of true shock-collapse the great object must be to *rouse the attention of the brain*, so to speak; and for this purpose the strongest stimulants, in concentrated form, are the best. Brandy diluted with only an equal quantity of water is the most suitable remedy; and if it cannot be swallowed it should be given in the shape of enema; but even here it would be a great mistake to suppose that enormous quantities of alcohol would be beneficial. On the contrary, in common with the two other great members of the anæsthetic group of narcotics—chloroform and ether—alcohol in decidedly narcotic doses is singularly depressing in shock-collapse,¹ though less so than either of the other two; and we may here remark that there is then no such insensibility to its narcotic influence as in the depression produced by hæmorrhage only. In shock-collapse it is best to give an ounce dose of half-and-half brandy and water every fifteen minutes, and a very few doses are all that are useful; the rest of the work must be done by such stimulations as surface-heat, friction, &c., and advantage must be taken of the earliest opportunity to administer food, if the patient be in a state of fast.

It is quite otherwise with the state of shock-depression that commences with a sudden rigor, followed by quasi-hysterical reaction. However alarming the depression may seem, alcohol is *not* the best remedy. Sulphuric ether given by the stomach if it can be borne, or in extreme cases injected into the rectum, is at once more effective,

¹ We have elsewhere expressed our belief that this state is the only condition which truly contra-indicates chloroform anæsthesia in patients who are at all fit to bear an operation.

and greatly less objectionable than alcohol; it is at once a stimulant and a regulator of cardiac action, and in milder degree of the whole cerebro-spinal nervous system.

Forty-minim doses may be given by the mouth (in 2 oz. of acacia mixture), or 60 minims may be injected per anum, suspended in 3 ounces of mucilage. Camphor, in 5-grain doses, is the next best remedy for this state.

SECTION II.—WINES IN CHRONIC DISEASE.

THE final section of our subject concerns the employment of wines in chronic diseases—a theme so extensive that it is difficult to select the points which may be most advantageously brought together within the compass of a paper of moderate length. The best division of the subject that suggests itself to our mind is the following:—

1. Wine in debility, produced by failure of primary digestion. 2. Wine in defective conditions of the blood such as anæmia, chlorosis, hydræmia, &c., not yet complicated with tissue-change. 3. Wine in phthisis, and in the wasting diseases of childhood. 4. Wine in chronic neuroses of the aged. 5. Wine in exhausting mucous discharges. 6. Wine in chronic suppuration.

1. In a large number of persons debility is mainly caused by a failure of primary digestion: the first starting-point may have been either of several occurrences, but the main fact is that the patient does not digest, even if he still swallows, a sufficient quantity of nutriment; very

commonly, too, the evil reacts upon itself, and persistent under-nutrition brings about a notable impairment of appetite, or even a positive disgust for all food.

It must be understood that cases of the class we refer to are not always distinguished, in the first instance, by loss of appetite; indeed there are some patients who from first to last take a fair quantity of food, though they fail to make use of it in the organism. And on the other hand there are plenty of cases of failure of primary digestion, where anorexia is from the first a conspicuous symptom, but in which the administration of alcohol in any shape would be a grave mistake. Among these we may, perhaps, include the majority of chronic catarrhal affections, but of course most especially that variety of gastric catarrh which has itself been provoked by alcoholic excess: here no treatment will be anything but mischievous which does not include a complete abstinence from alcohol. On the other hand, the absence of well-marked catarrhal physical signs (*e.g.* in the appearance of the tongue) by no means certainly contradicts the notion of alcohol as perhaps the cause of dyspepsia: we occasionally see a drunkard with a perfectly clean tongue.

Chronic gastric catarrh, arising as an apparently independent affection, and not linked (as it often is) to chronic diseases of some other viscus, is probably always caused by improper food or drink, or else by the same kind of exposure to weather, &c., which might produce an ordinary chronic nasal or bronchial catarrh. It is consequently but very rarely a fit subject for alcoholic treatment: but if ever such treatment be found absolutely necessary from the general state of health, a very light effervescing wine, free from sugar, or extremely weak brandy and soda-water, is the only form

which should be allowed. A single glass of strong wine or spirit may undo the work of months of treatment.

There are, however, a considerable number of cases of dyspepsia, to which there is a tendency, at present, to give the title of catarrhal, simply on the ground that the dyspepsia and want of appetite are accompanied by a certain amount of apparent enlargement of the tongue, and exhaustion of its epithelium, with perhaps a few red points near the tip; but in which the original cause of the mischief is, in truth, nothing but nervous depression. For such cases as these a fixed moderate allowance of a generous wine is very helpful. When we can distinctly make out from the history that the patient has not exposed himself to the effects of improper food or drink (very often such people have been too abstemious in every way), or other ordinary causes of stomach catarrh, we may very properly employ a wine of good body and medium alcoholic strength. For an adult man, six to eight ounces per diem of a Beaune (Burgundy) of about 14 per cent. absolute alcohol, or four ounces for an adult female, will be very useful: and for the same purpose we may recommend several of the stronger red Hungarian wines, and the Greek wine known as red Kafesia. The chief requisites in wine, for this purpose, seem to be (*a*) medium alcoholic strength, and (*b*) good original vinous flavour; and it does not appear requisite that the qualities of very *old* wine should be present. A moderate amount of *astringency* perhaps may increase somewhat the good effects of such wines upon the appetite; but anything like a highly tannic wine will rather disgust, and may also cause troublesome constipation.

While maintaining however, that many such dyspeptic

patients, with pseudo-irritant symptoms, are really benefited by wine, we must insist that the quantity be strictly restrained to the limits above mentioned, and also that it is very necessary to inquire whether the original depression did not arise mainly from neglect of ordinary food. Dr. Blandford has recently pointed out¹ the great mischief that is often done to the nervous system by the bad custom of many hard-working merchants to pass a long day from breakfast to late dinner without food; and we may lay it down as very certain that the dyspepsia, which is a prominent feature in such cases, should be encountered, in the first place, rather by increased quantities of suitable food than by alcohol.

(2.) The use of wines in conditions of blood which, whether in the form of simple anæmia, chlorosis, or general hydræmia, indicate above all things a deficiency of the all-important red corpuscles, is by no means a simple matter. Practically we may clear the ground somewhat by laying down, as a fact, demonstrable from large and general empiric experience, that anæmia resulting from hæmorrhage nearly always does require and is immediately benefited by the use of alcohol; and that this is much best given in the form of full-flavoured and potent wine. For such purposes, full-bodied port wine of moderate age, but retaining much of the richness of its original flavour, is decidedly the best agent: and we may venture to administer it with considerable freedom (*e.g.* 12 to 16 oz., or 6 to 8 small port glasses, for an adult), on the condition that we never produce symptoms of narcosis. It will be found that these quantities are often well borne at

¹ "On the Value of a large Supply of Food in certain Nervous Diseases;" *Practitioner*, July, 1870.

first, but they must be rapidly and steadily reduced as the patient's condition improves, and as he becomes more sensitive to the action of alcohol.

It is much more difficult to say whether, or how much alcohol ought to be given in cases of anæmia which verge towards the chlorotic type. As a general rule we strongly object to its use in this form of blood-weakness, for we have found it complicate matters by increasing the headache and distaste for food, without really advancing the blood-regeneration in the slightest degree; moreover wine has a tendency to make this class of patients more hysterical and self-indulgent than they otherwise would be. Exception, however, must be made for the case of rapidly advancing chlorosis of a dangerous type, with profound melancholy: here the use of stimulants, and especially of generous port wine, is often our most valuable resource; although it can only divert the course of disease, and give breathing time to allow of the effectual use of tonics, food, and hygiene.

Again, there is a class of anæmic cases in which the true source of mischief is nothing more than *neglect of bed*, coupled or not with anxiety and worry of mind. If this neglect of rest be inevitable, from the press of necessary work, then, imperfect as the remedy may be, we believe that alcohol must be allowed, and that pretty freely. It must never be forgotten that rest, and not alcohol is the true remedy. Nevertheless we are quite certain that it is an error to suppose that alcohol does nothing more than enable such persons to use up their brain tissue faster, and thus get more work out of themselves for the moment: we cannot doubt that it affords substantial assistance, whether by the production of brain-force, or possibly by aiding the nutrition of nervous

tissue. Only it must always be remembered that the repair of all tissues is far more effectually provided for by periods of rest from strenuous exertion, allowing time for the more slowly convertible elements of food to have their full effect.

As regards the condition of hydræmia,—general poorness of blood in all solid ingredients,—which is so strikingly seen in sundry chronic visceral diseases, we believe that no absolute rule as to the use of alcohol can be laid down, some such patients appearing to bear stimulation very badly. In the great majority of such cases, however, it is quite necessary, and the main point is to employ it in that form which will exert the maximum good influence upon appetite and digestion. For this purpose we have always found the greatest effectiveness in port or sherry, or marsala; and it is desirable to choose a wine not so old as to have lost its original flavour. Sherry of moderate age contains this last qualification with a fair development of the volatile ethereal ingredients; and these are a very useful element, more especially when the patient is restless and sleepless.

(3.) The question of alcohol in phthisis of adults is hotly disputed: on the one hand, many authorities maintain that it is an unmixed evil; on the other hand, the treatment possesses numerous advocates, and we even meet with records (by Flint and others) of patients almost exclusively nourished upon an alcoholic diet for prolonged periods, with apparently very beneficial effect. This subject has engaged our particular attention, and without expressing a very confident opinion, we have good grounds for believing that the following is a near approach to the truth. There are two classes of cases in which alcohol appears to play an important part in

the arrest of phthisis. In a class of patients who have delicate skins and perspire very freely, and with whom, at the same time, oil and fatty matters habitually disagree (a not very common combination of conditions, but one which is seen in a certain number of instances), we have more than once seen remarkable effects produced by the entire abandonment of all medication, and the employment of large doses of spirit—whisky or rum; and a singular point in these cases was the *tolerance* of alcohol that was shown, even from the first. It is a singular sight to observe a delicate and habitually abstemious person taking ten or twelve ounces of rum a day as coolly as if it were the most customary thing; yet that was the allowance consumed by a patient of my own, and with the exception of a fair amount of milk it was almost his sole nutrition during many months, in the course of which the most threatening symptoms of the disease, especially the signs of commencing softening had entirely disappeared.

Even where the patient, however, is not affected in the peculiar way above indicated, and where he is able to take a fair amount of fatty and other nutrient matters, there is an important use for alcohol in certain contingencies, though we believe that it should be excluded from the routine of his daily life. We refer to the occurrence of hectic and other symptoms of acute softening: and we hold that there is a great want of discrimination in the way in which wine treatment is often recommended, or forbidden, by authorities in these cases. Our own experience has led us to believe that the question must here be judged, just as we have proposed that it should be judged in cases of acute disease, *experimentally*. In each case the effects of experimental doses upon the form of the pulse-wave, and on the temperature, and

the elimination of alcohol by the kidneys, should be carefully tested; and according to what we have noted in observing a large number of cases, we are justified in believing that when alcohol reduces temperature, and the dicrotions of the pulse, and fails to pass away in notable quantity by the kidney, it *always does good*; but that the slightest degree of narcotic action of alcohol is decidedly harmful. We do not doubt that it is to the results of such narcotic action that some physicians refer, when they say, as a very able physician said to us the other day, that "alcohol was murder in phthisis." As regards the form of alcohol to be employed, we believe that the main thing to be considered is the patient's fancy, as this will very generally indicate the proper forms of stimulant. Only, we ought to be careful to know the alcoholic strength of the liquor, whatever it be, and we ought to be sure that the wine is free from acetous decomposition.

Among the wasting diseases of childhood there are a variety of conditions in which the judicious use of alcohol is invaluable; and here the stronger wines are invariably to be preferred, especially sherry. We have already referred to the use of small quantities of sherry in the case of children who, without manifesting any signs of positive disease, show a marked tendency from time to time to run down suddenly in flesh. But wine has a much more positive value in infantile wasting which is the expression of a serious constitutional vice. Among the conditions of this kind we may especially notice the scrofulous and the rickety forms of disease, and beyond all, well-pronounced tabes mesenterica. It is rather remarkable that the evident superiority of steel wine to other ferruginous preparations, in the majority of these cases, has not led to a more general consideration

of the probability that the vinous part of the medicine goes for much in its effect upon the organism. Our own attention was principally called to the use of wine in infantile marasmus by the pre-eminent efficacy of the vinum ferri; and since that time we have very often made the experiment of relying on wine without the iron. The results have been excellent; and in studying the matter as closely as we could, we have been led to the conviction that it is principally by fortifying the functions of primary digestion that the remedy produces its good effects. It is now our invariable custom to commence the treatment of all cases of tabes by prescribing a fixed allowance of sherry (given as medicine preferably, with the addition of a vegetable bitter) at the rate of from one to two ounces per diem. Nor does it make any difference whether the case be complicated with diarrhoea or not, only in the latter instance there is nearly always additional reason for strengthening the function of primary digestion, and wine is especially useful; though it is needless to say that careful avoidance of food that is difficult of digestion is an essential condition of success. In rickets, again, a diet composed entirely of cream, milk, and bread, with the addition of some phosphate of lime, and the allowance of sherry just mentioned, affords, probably, all the assistance that nature can receive from art in rectifying the faulty nutrition of the body, except in the way of general hygienic regulations. But it is especially in warding off true tuberculosis from children that the value of wine is conspicuous; and were this more generally recognised, we believe that phthisis of children, instead of being so fatal a disease as it is, would rarely develop in a fatal form at all; of course supposing that all proper hygienic *precautions* were adopted, and especially a liberal supply

of simple and nutritious food. But we repeat here what we said in another place: wine should always be given to young children in the form of medicine, and not as a beverage at meals: since it is important not to set up a liking for it which, when the child arrives at the critical period of puberty, might have an unfortunate influence on the further development of the emotional and sensual part of his nature.

(4.) Certain chronic neuroses of the latter part of life present special aspects in which wine becomes an important consideration. We refer especially to that exceedingly severe and intractable form of neuralgia (most commonly facial) which is rarely or never developed until after the age of forty; and which, once developed, resists remedies with such pertinacity. We are not quite so helpless against this terrible malady, it is true, as we formerly were; in particular it may be said that galvanism now appears to offer great chances of substantial relief. Still the misery which these neuralgias inflict, and the extent to which they shatter the system, is deplorable under the best of circumstances; and we need every helpful adjunct we can get. The reflex irritation which the disease sets up is often fatal at once to appetite and to sleep; and wine is the true remedy for this part of the mischief. In elderly persons we have not to apprehend the same mischief to character which is so great a danger when alcohol is prescribed with freedom for the chronic ailments of those who have not yet passed the "grand climacteric;" and we have personally seen cases in which, when the stomach would retain scarcely anything else, it was quieted, and the patient's strength was admirably husbanded and fortified, by an almost exclusively alcoholic diet—twelve to eighteen ounces of sherry per diem continued for several

days. The older the wine, the more endowed with ethereal ingredients, the more effective is it for this purpose. Still we have seen patients greatly benefited by large doses of spirit which was practically little more than alcohol.

(5.) The employment of alcoholic drinks in cases of chronic mucous discharges—*e.g.* chronic catarrh of bronchial or nasal mucous membrane, chronic leucorrhœa, &c., is a very doubtful matter. That they frequently relieve the sensations of depression and discomfort which these affections cause is unquestionable, and in the case of the chronic bronchial catarrh of the aged it may be that they are indispensable. As regards the commonest of all chronic mucous discharges—leucorrhœa—we have long been learning, with increasing strength, to believe that the treatment is almost un-mixedly mischievous; at any rate that alcohol ought never to be prescribed, whatever the apparent degree of depression, save in very small quantities of wine, preferably claret, Hungarian Carlowitz, or some of the rough red Greek wines, taken with meals to assist appetite and stimulate primary digestion. The true remedies are local astringents and the free application of cold water, combined with the most persevering use of exercise in the open air. And alcohol offers the most serious temptations to women suffering from the deadly languor often associated with profuse leucorrhœa, temptations which they would do well never to face.

There is a particular use of alcohol, however, in one form of chronic catarrh, *viz.*, the chronic pseudo-dysentery of young children, which is really of high value. Directly astringent *medicines* are of almost no use in these complaints; and the only drugs that should be employed are ipecacuanha, with or without very small

quantities of opium. But a slightly astringent red *wine* of fair alcoholic strength often is very useful. And here we have much pleasure in saying that some of the Greek wines, of which we have been rather sparing of praise in other relations, fill an important place. They have the requisite body, they have a useful degree of astringency, and they have an alcoholic strength conveniently intermediate between the lighter natural wines and the strongly fortified ports, sherries, and marsalas. Three table-spoonfuls a day, for a child of three years old, is a fair allowance.

We hasten to conclude this imperfect sketch of the use of wines in chronic diseases by a few words on what is perhaps the most important part of the subject, viz., wine in the treatment of chronic suppuration. There are at least two objects which alcohol can achieve in this state, and they are of so great consequence that the judicious use of this remedy is frequently decisive in averting serious and even fatal results. In the first place, there is every reason to think that the free (but non-narcotic) employment of alcohol checks both the migration of white corpuscles and all the subsequent movements which go to the formation of pus; and if it be true, as some suppose, that pus cells are also formed from the division of the elementary tissues, there can be little doubt that this process also would be checked by the treatment. On the other hand, alcohol, especially when given in the form of stout or port-wine, marvellously sustains and fortifies the appetite and the primary digestion. The prompt limitation of chronic suppurative processes is by no means to be thought of—with our present knowledge—as a mere beneficial check upon the morbid action which is directly exhausting the bodily forces. It is all-important, because we have to dread absorptive

infections, and the appearance of the true and almost necessarily fatal tuberculosis. How powerfully this argument ought to weigh with us is sufficiently apparent if we consider the case of chronic empyema, and the miserable frequency with which it is followed by fatal phthisis. The prompt evacuation of the pus, even in cases of large chronic abscess, if it were supplemented by proper local measures for cleansing the cavity, and excluding fermentative processes, would far more frequently be followed by cure than is now the case, if it were associated with the intelligent use of alcohol. The copious, and even reckless, administration of stimulants is perhaps common enough; but this is often mere waste. The patients will bear and require more alcohol than in health: but there is no need for any great excess. The simultaneous use of alcohol and of quinine, according to the principles laid down by Binz, offers the true solution of the matter. From three to six wine-glasses per diem of port, each glass containing one grain of quinine, is, we believe, incomparably the best form of administration to employ in all these cases. But even here we must insist that it is absolutely necessary to judge by results, and to scrupulously reduce the allowance of wine the moment that even the slightest symptoms of narcosis present themselves.

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